



# FACILITIES CONNECTION

WESTERN MICHIGAN UNIVERSITY • FACILITIES MANAGEMENT DEPARTMENT

*WINTER 2011 EDITION*



Arbor Day is coming up, watch for signs of when and where the 2011 celebration will take place.

Photo by: Lindsey Hashmi

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## PUBLICATION INFORMATION

We would like to thank everyone who contributed articles, photos, and elements of this newsletter. Your contributions are appreciated and are imperative to the future of Facilities Connection.

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**On the Front Cover:** Wintery scene of the College of Health and Human Services Building, by: Lindsey Hashmi

**On the Back Cover:** Beautiful WMU by: Lindsey Hashmi

# A Message From...

## THE ASSOCIATE VICE PRESIDENT OF FACILITIES MANAGEMENT



### Greetings...

Welcome to the 2011 Winter Edition of Facilities Connection. This edition focuses on campus sustainability and facility stewardship of the campus built environment. Each FM Division and Operating Unit has many of their goals and strategies centered on sustainable facility best practices. I hope it gives you a unique insight on how we stretch our limited resources to plan and maintain a better campus for our students, faculty, staff, and all campus customers. The leadership provided by President Dunn and his vision of a sustainable campus provides our FM team the focus we need to implement our strategies and daily routines. We also appreciate the collaboration with faculty, students, and the Office for Sustainability on many of our initiatives.

Our Planning Division is working on a new addition to Lee Honors College and a proposed Archives facility that will be LEED certified. They are also working with the Office of Sustainability on a new edition of the WMU Building Life Cycle Design Guidelines. The Construction Division is well under way with Sangen Hall and Western View Apartments that will be LEED certified. The Engineering Division is supporting the EcoThon competition and in the middle of certifying 5 more buildings for LEED- Existing Building Operation and Maintenance.

The Operating Units are working diligently on green cleaning, alternative fuel transportation, recycling, sustainable de-icing techniques, efficient lighting replacements, shorter cycle time and less paperwork to process work orders, as well as improving power plant steam turbine efficiencies. These are just some of the examples of our present activities. As you can see, We Sustain is no longer a new campus logo, it is the way we think and act every day.

Many of these sustainable facilities practices have been recognized by the Sustainable Endowments Institute, the National Wildlife Federation's Campus Ecology Program in collaboration with Princeton Survey Research Associates International, and the US Green Building Council. The entire FM team is proud of our accomplishments. I am excited to represent the entire Department at the National Facilities Management and Technology Conference in April where WMU will receive the FMXcellence Award. WMU is the only University to receive the award this year. Speaking of our team members, you will find in this edition the FM recipients of the WMU Make A Difference Awards. Our employees also enjoy the many thank you notes and appreciation emails for the good work they do every day, some are reprinted in this edition. Please take a moment each day to recognize the work of our employees and thank them. We hope that will also become a sustainable practice across campus.

Warmest Regards,

*Pete*

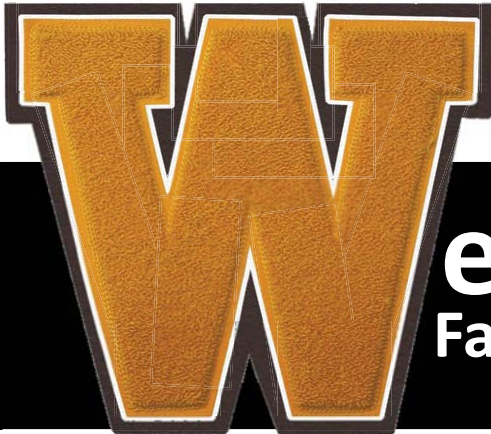
Peter Strazdas  
Associate VP, Facilities Management



This April, Associate VP of Facilities Management Peter Strazdas will travel to Baltimore to receive recognition for WMU's Facilities progress in sustainability projects and practices. FMXcellence honorees were chosen by the editors of *Building Operating Management* magazine and will be featured in the April 2011 edition of the magazine.

Further information should be available on the website shown below in the coming days or you can visit the FM website for additional information about our sustainability initiatives. Follow us to see how we are making a difference at WMU.

<http://www.facilitiesnet.com/bom/fmxcellence/>



# e make a difference

## Facilities Management Department



Pictured from left to right Stephen Root, VP Lowell Rinker , Ray Novess



Pictured from left to right Kathi Cain-Babbitt, President Dunn, Conn Macomber, Sheri Harper

# MAKE A DIFFERENCE AWARD

Five employees of the Facilities Management Department received 2010 WMU Make A Difference Awards. This staff recognition program recognizes those who demonstrate excellent customer service, professionalism and innovation into their roles here at WMU.

**Congratulations to all the recipients for a job well done!**

### Fall 2010

Stephen Root-Landscape Services  
Ray Novess-Construction Services

### Spring 2010

Conn Macomber-Projects and Construction Services  
Kathleen Cain-Babbitt-Landscape Services  
Sheri Harper-Projects and Construction Services

# PEDAL POWER



Not only has sustainability affected the transportation we are using on the job, it also reflects personal strides employees are making to and from work, and around campus. A few staff members of the Facilities Management Department incorporate the use of a bicycle to get around on campus.

Kirk Dillery, Energy Systems Specialist in the Facilities Management Department, estimates he rides from 5-10 miles each day on campus. Dillery says biking has always been an important part of his life, ever since he was young, and that it has positively impacted his overall health.

Erik Dantes, Manager of IT for Facilities Management, started riding his bicycle to work when his family downsized to one car. He has been riding for about two years now at 6 miles round trip to and from work, and has seen many benefits including; an improvement in overall health, cost savings in consuming less gas, and just enjoying the ride.

George Jarvis, Director of the Power Plant, has been riding to work for years. Jarvis rides in all weather conditions and is relieved when it's the end of the workday and he is breezing by all the gas consuming vehicles waiting in heavy traffic to get home.

Norm Risk, Supervisor in Maintenance Services, utilizes a bicycle on campus for the sheer convenience of getting to where he needs to be quickly to do his job.



FM bike riders, from left to right George Jarvis, Norm Risk, Kirk Dillery and Erik Dantes

# The power of GREEN.

Cari DeLong, Manager of WMU's Natural Area and Preserves, has a definite hand's on job when it comes to sustainability. A graduate of WMU, Cari is in charge of over 568 acres of natural areas and preserves. Cari works closely with WMU's Office of Sustainability and acts as a liaison for the Facilities Management Department involving storm water mitigation projects, and natural areas and preserves including Asylum Lake and Kleinstuck Preserves.

Growing native Michigan plants is just one of Cari's projects that involve faculty, staff and student participation. Last year 3,000 plants were grown in WMU's Finch Plant Science Greenhouse and transplanted to WMU natural areas. This year that amount will be doubled. Native plants are grown from seed with the help of student volunteers and will be planted in WMU's Kleinstuck Preserve and a woodlot next to Lawson Ice Arena. This project provides learning opportunities for students and provides cost savings, since the plants are grown

at a third of the cost to purchase them.

Being involved in progressive, environmental projects around campus is one of the many reasons Cari enjoys her job. Whether it is coordinating a storm water improvement project or working with students on research projects at Asylum Lake Preserve, Cari is committed to improving Western's natural environment. Cari has teamed up with local schools, organizations and the Kalamazoo Nature Center to organize opportunities for children and volunteers to improve these areas and introduce them to the idea of environmental stewardship.

With many projects at different stages, Cari feels it's necessary to stay connected, and has been working on developing a combined website for WMU's Natural Areas and Preserves. She facilitates and number of community volunteers including the Stewards of Kleinstuck, a local volunteer non-profit started by neighbors of the Kleinstuck Preserve in



Cari DeLong

2007. The Stewards host educational events, organize volunteer work days and promote community involvement.

Be sure to watch for future events, project updates and signage around campus and online, as Cari continues to reach out and keep everyone informed and involved.

To Landscape Services:

“Please convey to your staff how much we appreciate the wonderful job that your people did in clearing the roads and sidewalks on campus. It's a safe place to be.”

Nancy Dyksterhouse  
Office of the President

To Landscape Services:

“From Academic Affairs, our sincere appreciation to you and your entire crew. Please let them know we appreciate their hard work.”

Tim Greene  
Provost/VP Academic Affairs

To BC&SS:

“The carpet on third floor of Everett Tower looks wonderful! Thanks so much for getting this cleaning job so promptly and doing such a terrific job. We sincerely appreciate your efforts.”

Kimberly Tembreull  
Department of Mathematics

To Building Custodial & Support Services:

“I wanted to let you know that among the people for whom I'm grateful are the Dalton Center Custodians. They strive to keep our building in ship shape. As you know, we have a lot of public traffic and a variety of individual studios to large performance facilities. The students, faculty, staff, administrators and public all benefit from their good work.”

Margaret Merrion, Dean  
College of Fine Arts

# Your thoughts are important to us.

To Maintenance Services:

“The new email really works for me here at the Fetzer Center. I am very happy to be able to actually communicate with a real person when a problem arises or if I just have a very general question that doesn't warrant a work request. I always receive a quick response which in my business is essential. Being a frequent user of the request system, this area of customer service really works.”

Denise Richards  
Fetzer Center

To Landscape Services:

“The work you guys do is amazing! I have been a student at Western for four years, and I walk a great deal because my apartment is close by so I have ample opportunity to notice the shape of WMU's grounds. Even at this time of year, when fall has begun and not many things are blooming, WMU's Landscape Services has every flower bed and every lawn in impeccable shape and I guess I just wanted to tell someone somewhere that it really makes walking to class a beautiful experience! Thank you for all you do!”

Sarah N.  
Student



## Projects in Planning: *Archives Facility*

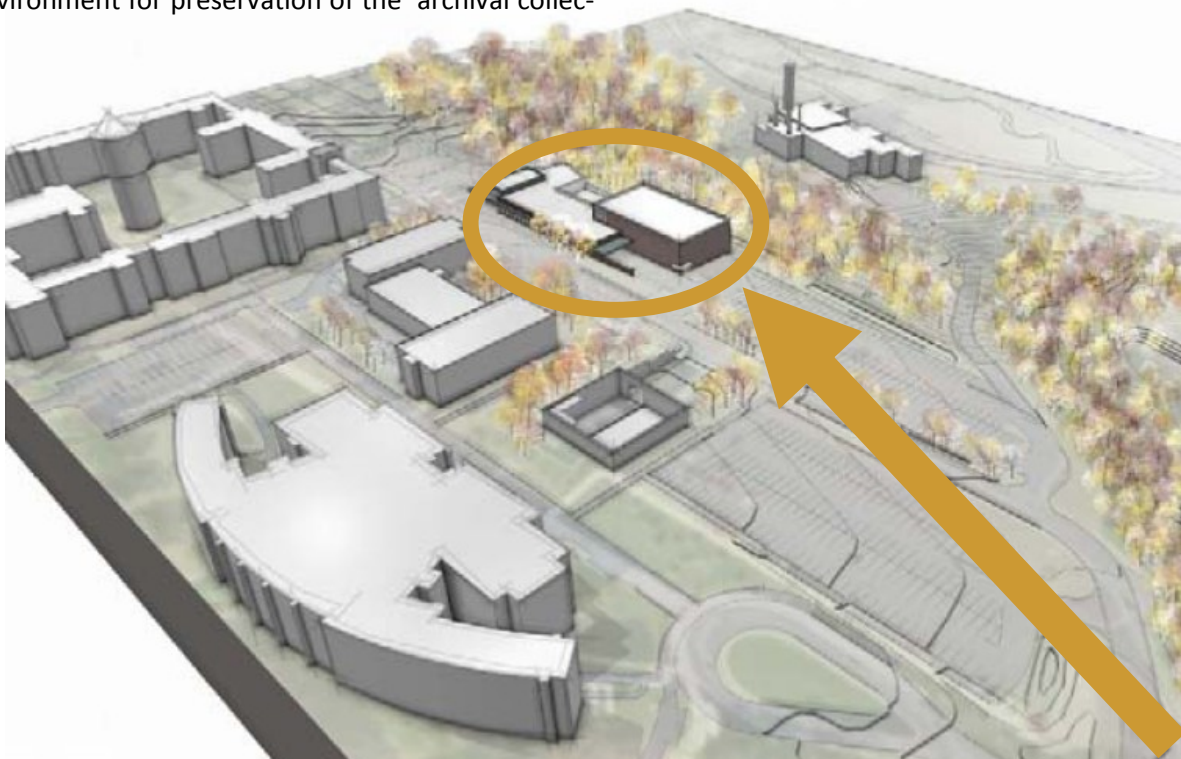
Article by: Dave Dakin, Director

A new facility for the University Archives and Regional History Collections is being planned on the Oakland Drive Campus. The building will contain a public reading room, classroom, staff offices/work areas and secure stacks with mobile, high-density shelving for efficient space utilization.

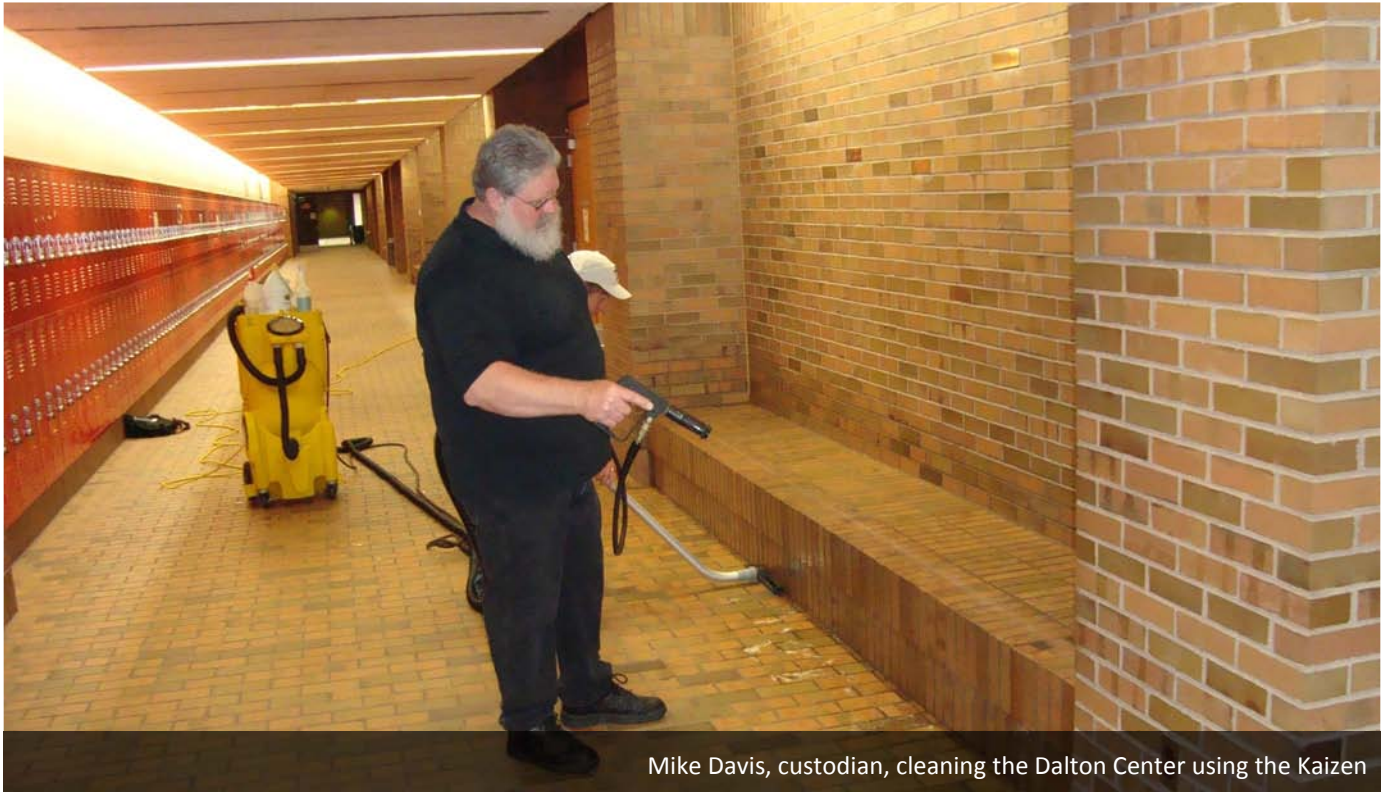
Special HVAC and lighting systems will provide an optimal environment for preservation of the archival collec-

tions. The facility will also contain off-site storage for less used University Library collections. A sustainability goal of the project is to achieve LEED Platinum Certification.

The project is currently in the Schematic Design phase, with fundraising efforts to begin with a public input meeting on March 8th.



**Proposed Archives Facility Site  
Oakland Drive Campus**



Mike Davis, custodian, cleaning the Dalton Center using the Kaizen

## BC&SS: How we are working toward our **GREEN** mission

Article by: Shelley Grant, Director

Building Custodial and Support Services continuously puts forth an effort to maintain a position at the forefront of cleaning maintenance technology by employing safe, effective cleaning methods and equipment. BC&SS is strongly committed to “Green Cleaning” through its use of chemicals, equipment and techniques that are environmentally friendly.

The mission of WMU’s Building Custodial & Support Services department (BC&SS) is to provide a safe, clean, and healthy environment for our students, faculty, staff and visitors. BC&SS is strongly committed to “Green Cleaning” through its use of chemicals, equipment and techniques that are environmentally friendly.

Our policy encourages all members of the University community to participate, support and help sustain this commitment to the environment. Green Cleaning encompasses a number of elements: choosing cleaning products and equipment that are not detrimental to the

environment are cost-effective, in addition to being more effective in their application as cleaning maintenance tools in order to provide our students and the taxpayers a valuable return on their investment. BC&SS is also committed to providing on-going and up-to-date training for all our employees to further ensure and express our commitment to make environmentally conscious cleaning a “Best Practice” for the department.

The purpose of this policy is to ensure students, faculty, staff, and visitors are not exposed to any potentially hazardous chemicals or other potentially hazardous situations. To ensure that where and when chemicals, other cleaning agents, and cleaning equipment are in use, every effort has been made to limit and/or minimize any potential adverse effects which may diminish a facility’s indoor air quality or otherwise affect negatively the building user’s well-being.

The Building Custodial & Support Services unit at Western Michigan University has established many “Green Cleaning” goals and strategies to help emphasize environmentally safe, low-impact cleaning maintenance practices. BC&SS recognizes and understands its responsibility to the environment, as well as the need to provide leadership as vigilant and knowledgeable facility and environmental stewards for the University community.

BC&SS seeks to improve its operations whenever and wherever possible by:

- ◆ Educating, training, and motivating the custodial staff to work in an environmentally responsible manner
- ◆ Reviewing with and coaching all custodial personnel about their responsibility to maintain and practice our environmental policies
- ◆ Consistently working to make the most efficient use of energy, water, and human resources while at the same time providing a safe, clean, and sanitary environment for the students, faculty, staff and visitors within which to pursue higher learning and related university activities
- ◆ Maintain compliance with all current, relevant legislation and industry standards
- ◆ Use cleaning products that meet the Green Seal standard GS-37 and/or products with low-volatile organic compounds whenever possible and applicable
- ◆ Use products that meet EPA standards of high, post-consumer recycled content
- ◆ Use equipment with the most cost effective, efficient filtration
- ◆ Use concentrated cleaning products whenever available
- ◆ Use chemicals in conjunction with chemical systems which provide dilution automatically and accurately using cold water
- ◆ Use products that are packaged with recyclable materials
- ◆ Prohibiting the use of phosphate and aerosol products



Mark Robinson, custodian, disinfecting tables



Russ Frey, custodian, disinfecting drinking fountains

The screenshot shows the Western Michigan University Facilities Management website. The main header includes the WMU logo and navigation links for Home, About WMU, Academics, Admissions, Alumni & Friends, and Student Life. A search bar is also present. The main content area features a large 'GO GREEN' logo with the text 'Western Michigan University BUILDING CUSTODIAL & SUPPORT SERVICES'. Below this, there is a section for 'WMU DAY 2009' with a photo of staff and a 'Green Cleaning Event' banner. At the bottom, there are links to 'WMU Green Cleaning Program', 'Green Cleaning Policy', 'BCSS Equipment Policy', and 'Green Cleaning Powerpoint Presentation'.

Visit our website for more information on our green cleaning policies and practices.

<http://www.fm.wmich.edu/operations/custodial>



## Transportation Services: Moving Toward A Greener Future

Article by: Jeff Alexander, Manager

Sustainability and recycling are a priority for Transportation Services. We use recycled antifreeze in all of the university vehicles. We recycle waste oil, waste antifreeze, used oil filters, metal, plastic, batteries, cardboard and paper products and we have our old tires disposed of through a tire reclamation vendor. Keeping things from going into a landfill is better for all of us.

When it comes to vehicles, in the last two years 1/3 of the vehicles in the Facilities Management fleet have been replaced by smaller more fuel efficient cargo vans. We replaced many of the full-size cargo

vans that had 8 cylinder engines and an EPA estimated 12 City/16 Hwy with smaller Ford Transit Connect cargo vans that have 4 cylinder engines and an EPA estimated 22 City/25 Hwy. Our carbon footprint dropped from a high of around 13.3 to 8.1 on those vehicles replaced.

We continue to monitor new technologies in an effort to upgrade our fleet to more fuel efficient and sustainable vehicles as they become available. These new technologies are plentiful, and continually changing which makes it an exciting time for transportation.

## New Designs and Technologies

The automotive industry continues adding new technologies to their designs in an effort to achieve better fuel economy: direct fuel injection, displacement on demand, variable valve timing, continuously variable transmissions (CVT) are just a few examples. Ongoing training for our mechanics is essential in keeping up with this ever-changing technology.

## Alternative Fuels

Whenever possible we purchase vehicles that are flex-fuel (E85) compatible. At this time E85 (85% ethanol) fuel is not readily available but when E85 becomes more accessible and cost effective to use, we will be ready.

The diesel vehicles on campus are using B5 biodiesel (5% biodiesel mixture). B5 biodiesel is the highest biodiesel mixture most vehicle manufactures will approve for warranty claims. As the manufactures expand their warranty coverage to include the higher levels of biodiesel we will increase the % of our biodiesel mixture.

## Hybrid Electric Vehicles

There are hybrid electric vehicles (HEV) such as the Toyota Prius, Honda Civic, Ford Fusion, Chevrolet Malibu, etc. Some are considered mild hybrids and others are full hybrid vehicles. The mild hybrids for example, may use only stop/start technology which shuts the engine off when you come to a stop and starts it up again when you press on the accelerator. Full hybrids are more complex and are integrated into the vehicles drive train and electronics. The plug in electric hybrid vehicles (PHEV) like the Chevrolet Volt are new. They use batteries to power the car for the first 30-40 miles and when the batteries discharge to a predetermined level, the small internal engine starts up and generates the electric to run the car. EVs, HEVs and PHEVs all use regenerative braking to assist in charging the batteries.

We will continue to “right size” our fleet in both size and number. In some cases we have replaced two vehicles with one that can do the job of both.

## Electric Vehicles

We continue to look into the all electric vehicles (EV) such as the new Nissan Leaf and the Ford Transit Connect EV. These vehicles run solely on battery power and have a limited range but in a university setting they have their advantages. This technology has progressed quickly and many of the problems we saw a few years ago have been addressed but the price is still extremely high and not cost effective to purchase at this time.



## NEW BATTERY RECHARGING STATIONS



We now have installed four Electrical Vehicle (EV) charging stations on campus, one in front of the Administration building, one at CEAS and two at the Physical Plant. EV charging stations are partially powered by Western Michigan University's renewable power source and they are located next to a public transportation bus stop.



JUST  
ANOTHER  
STEP  
**WE**  
ARE  
TAKING  
TO GO  
**GREEN**

## Recyclemaniacs Unite!

Article by: Carolyn Noack, Coordinator

Recycling and Waste Reduction Services (R&WRS) We have expanded our rechargeable battery recycling program. WMU will now accept any rechargeable battery for recycling, including those from home. We only recycle what we can find a market for, the list of recyclables changes over time. Recently we added a material and expanded collection of another.

Plastic bags can now be recycled. The bags MUST be kept separate from other recyclables, in a clear plastic bag. (A bread bag is clear enough.) Any plastic bag or film is acceptable, including bread bags, water softener salt bags, those bags of air used for packaging (please puncture to save room), bubble wrap, shrink wrap, etc. All bags must be empty before recycling. Contact R&WRS at 387-8165 or carolyn.noack@wmich.edu to arrange for a pick up.

We have expanded our rechargeable battery recycling program. WMU will now accept any rechargeable battery for recycling, including those from home. We have a free program and would like to encourage everyone to handle their batteries appropriately. The batteries may be dropped off at either 210 Physical Plant or in the Roe-Comm store in Bronco Mall. Each battery must be placed in a plastic bag to avoid terminal connections that may cause a fire. Cell phones may also be dropped off in these locations.

R&WRS will continue to expand recycling opportunities. If you have a material you think should be recycled, please contact us and we will look for those markets. Updates will be available on the website at [www.fm.wmich.edu/rs](http://www.fm.wmich.edu/rs)



It's Recycle Mania time again. Each year WMU participates in the nationwide Recycle Mania competition to see who recycles the most or generates the least amount of total waste. WMU has participated since 2003, when 8 schools competed. Last year there were 500 schools in the competition and it's expected to increase again this year.

WMU consistently scores well in the Waste Minimization competition which measures the total amount of waste and recycling generated, on a per capita basis, coming in 21<sup>st</sup> out of

148 schools in 2009. We generated an average of 2.8 pounds/person/week, compared to a national average of 4.5pounds/person/day. Since not generating waste in the first place is the most cost-effective and environmentally-preferred waste management option, this is great!

We tend not to rank as high in per capita recycling as you can't have low per capita total waste and high per capita recycling. We use the recycling percentage to gauge our recycling ability. Last year we recycled about 27% during the competition. This number should be much higher. A rate of about 40% is reasonable. With everyone's effort this is a realistic goal.

## RECYCLING/WASTE REDUCTION SERVICES



Treating roads and clearing snow left by the blizzard of 2011



Chad Avery, pre-wetting sidewalks with beet juice

## Snow and Ice Removal Operations

Article by: Tim Holysz, Director

Landscape Services started researching and reviewing the new liquid anti-ice and deicing tools 10 years ago to see if they could be used in our snow and ice removal operations. Five years ago we were anti-icing our walks and also started pre-wetting some of our bulk road salt. Today, we pre-wet (pile treat) all of our bulk salt supply for roads, lots, and walks. We continue to use anti-icing tactics on sidewalks. We use beet juice at six gallons per ton for a pre-wet and use 80-20 mix; 80% natural brine and 20% beet juice for anti-icing applications.

	Snow Total	Salt Purchased	Salt "On Hand"	Total Available	Salt Used	Increase/Reduction from previous season
<b>2008-09 Season</b>	126"	1,578 Ton	150 Ton	1,728 Ton	1,403 Ton	<b>19% Reduction</b>
<b>2009-10 Season</b>	80"	1,284 Ton	325 Ton	1,609 Ton	1,184 Ton	<b>16% Reduction</b> a <b>35% Reduction</b> from 2007-08 Season! **

Seasonal Average Snowfall = 72"

\*\* This is comparable to the 2000-01 levels of salt usage, before CHHS and CEAS were in existence!!

The reduction/savings is a direct result of pre-wetting our bulk road/parking lot salt with beet juice. The price of salt for the 2009-10 season increased 25% over the 2008-09; and it is a whopping 39% increase over the 2007-08 season. Our overall reduction in salt usage is 35% over the same period of time. Thus, we are stabilizing, or "off-setting" the increases in salt cost by reducing our usage. Plus, we are getting better performance by keeping our roads and walks "wet."



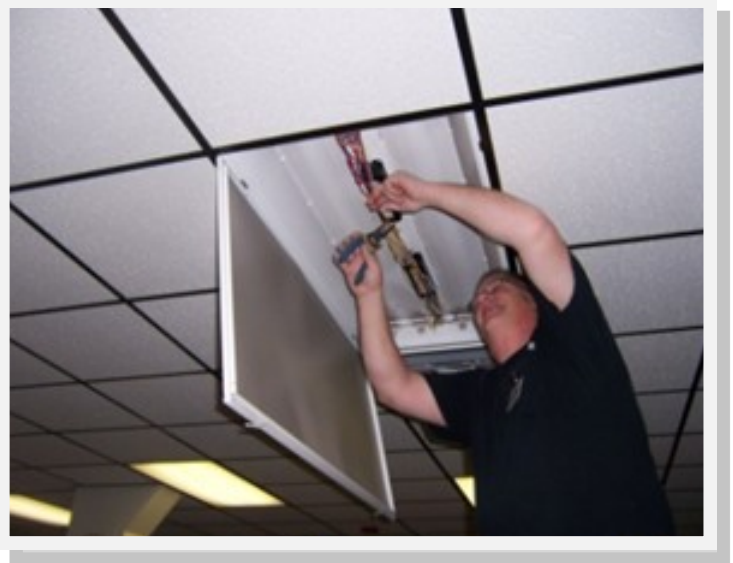
## Fluorescent Lighting T-12 to T-8 conversion

Article by: Jeff Carr, Manager

The most familiar fluorescent bulb is the tube, or linear, type. Fluorescent bulbs produce very little heat. They have a life expectancy of 10,000 – 20,000 hours. Most fluorescent bulbs cannot be used with dimming light fixtures. Fluorescent bulbs require an accessory called a ballast. The ballast ensures the bulb has the proper voltage to operate. For tube/linear type bulbs, the letter “T” signifies the bulb is a tubular style, and the number after the “T” indicates the tube size (diameter) in eighths of an inch. For example T-12 indicates a tubular fluorescent bulb with a 12/8, or 1.5 inch diameter. T-8 indicates a tubular bulb with an 8/8, or 1 inch diameter.

T-12 lighting technology is more than 70 years old. The production of magnetic ballasts for T-12 fluorescent light fixtures was brought to an end by the US Department of Energy as of July 1, 2010. Newer T-8 and T-5 technology is more energy efficient.

In July 1996, Western Michigan University’s Facilities Management Maintenance Services unit began to upgrade light fixtures across campus, moving primarily to T-8 fluorescent lamps. T-8 lamps offer more lumens per watt. Older T-12 light fixtures use



Electrician Sean Schipper upgrading a light fixture

less-efficient, magnetic ballasts, and often have four or more lamps per fixture. Newer T-8 lighting employs more efficient electronic ballasts. The move from T-12 to T-8 generally reduces the number of lamps needed, for example a T-12 fixture with four lamps can generally be upgraded to a T-8 fixture with two lamps.

To date, approximately 70% of the buildings on the WMU campus have had the light fixtures upgraded. Beyond simply upgrading light fixtures, WMU has taken a broad approach in this area by examining the entire lighting system for each facility. Employing techniques such as daylight harvesting, and adding occupancy sensor technology, in combination with fixture upgrades has allowed for even greater efficiencies.

Additionally, the Facilities Management Maintenance Services and Building Custodial units participate in a formal, bulb-recycling program. In collaboration with WMU’s Environmental Safety & Emergency Management department, spent lamps are labeled, and then taken to a common collection area for proper disposal, which prevents the release of mercury into the environment.

## MAINTENANCE SERVICES

# Models of Efficiency

## PDA Initiative

Article by: Jeff Carr, Manager

The process for receiving and responding to requests for service involves many steps. The Service Center receives a request and creates a work order. The work order is printed to the zone shop. The supervisor assigns the work order to the appropriate skilled trade technician. The technician uses the work order to document the services performed. Once the job is completed, the work order is then submitted back to the zone shop supervisor, who reviews and returns the work order to the service center to be closed.

The number of people and number of steps required to address a single request for service is too great. The work order process needs to be more efficient. The goal: reduce the number of steps and people involved in the work order process, ensure accuracy of information, increase productivity, reduce and/or eliminate paper waste, and realize long term cost savings as a result.

The solution: Personal Digital Assistants (PDA) for the technicians. The Facilities Management department purchased 60 mobile devices and provided a systematic training program for technicians and supervisors. The devices allow for real-time data to be in the hands of the technicians, regardless of their location: now a

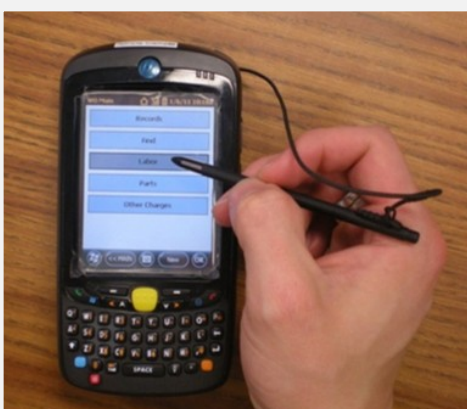
request for service is received, a work order is created by the Service Center, the information is transferred electronically to the supervisor and technician, the technician responds and completes the job, and closes the work order via the PDA.

The transition from a paper-based, multiple-step process to a wireless-based technology has reduced the number of people, and time required, to move a work order from start to finish. For example, the old, paper-based process required the Service Center to spend approximately 1,400 hours per year performing data entry to close work orders. The wireless technology and its compatibility with department's work order software, enables the technician to close the work order as soon as the job is completed, eliminating the need for the service center to be involved in this part of the process.

Additionally, the PDA's have bar coding, preventative maintenance, and time clock capabilities, which further streamline the process. The fact that the technicians now have a wealth of information at their fingertips has resulted in greater efficiency within the department as well as improved services for all members of the university community.

Please visit the WMU Facilities Management website for a more detailed overview of the PDA initiative: [www.fm.wmich.edu](http://www.fm.wmich.edu).

## Information At Your Fingertips: A Reduction In Paper Waste



# FACILITIES MANAGEMENT | OPERATIONS



Pictured is one of our power plant operators, Tom Maida, performing a vibration check on the steam turbine driven feed pump. Our skilled personnel are trained in all aspects of pump maintenance and rebuilding.

## “Little Big Money Maker” at the Robert M. Beam Power Plant

Article by: George Jarvis, Director

Like Dustin Hoffman in the movie “Little Big Man”, sometimes a big thing comes in a small package, which is certainly the case with our steam turbine driven boiler feed pump here in the power plant. Steam is a great resource containing a lot of energy that can be used in a number of ways. We are most familiar with the use of steam as a source of heat in our buildings and for cooking, etc., but it can also be used to pump water which is what we’re doing here with our steam driven boiler feed pump. Steam is generated in our boilers at 200 pounds pressure here in the plant. This steam contains a lot of energy that can be put to work turning a turbine for example. Think of a tea kettle and a pinwheel and you can picture how this operates. A turbine is basically a specially built “pinwheel” with blades attached to a shaft that will cause that shaft to rotate when the steam impinges upon the turbine rotor blades. So

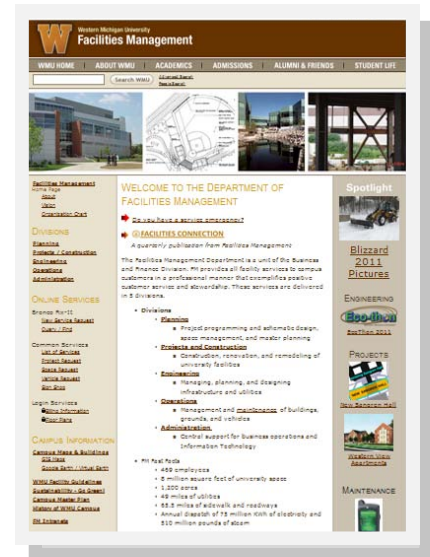
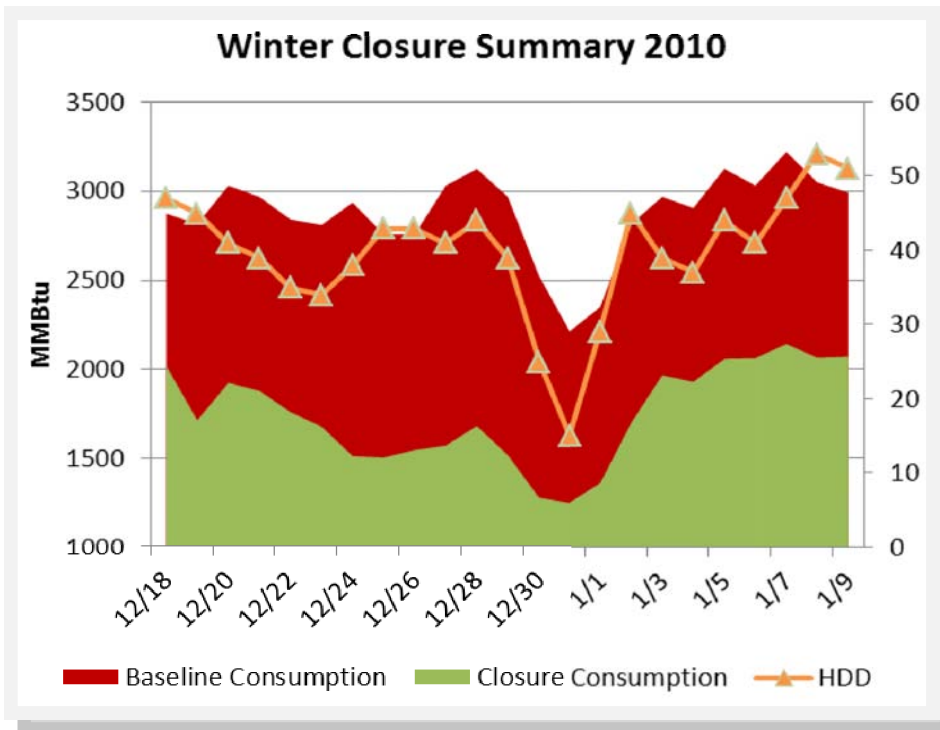
that it doesn’t speed out of control, there is a mechanical device called a “governor” in conjunction with other safety devices that controls the amount of steam sent to the turbine rotor and controls the output of the steam driven turbine. In our case this governor is controlled by the boiler feed water header pressure which is set typically around 400 pounds pressure. A rough rule of thumb is that it has to be at least 1 ½ times as great as the boiler drum pressure so that the water can overcome the pressure of the drum and the piping to the boiler to enter the boiler in the proper amount.

So, why do we do all this? Basically efficiency and money – if the available energy or “work” in this steam wasn’t utilized like this it would be directed through a pressure reducing station and reduced to a lower pressure such as 60 pounds where it is typically sent out to

campus to be utilized in our buildings. The “energy” that was in the steam comes out in the form of “noise” in the reducing station and is basically lost. In addition, valuable electrical energy would have to be used to operate a boiler feed pump to make up for this loss – a double whammy so to speak – we lose the available energy in the steam and in turn have to use electrical energy that could have been used to energize lights in the dorm or other end use instead of having to run the boiler feed pump. And, it’s not an insignificant amount. By running the boiler feed pump, we avoid having to operate a 150 horsepower electrically driven boiler feed pump which consumes on over 100 kilowatts per hour or around 80,000 kWh’s per month which can amount to over \$5000 per month!

So, yes, sometimes big things come in small packages.

# FACILITIES MANAGEMENT | ENGINEERING



## \$\$ SAVINGS DURING WINTER CLOSURE

Article by: Chris Capara, Student Assistant

Each December, as the fall semester nears its end, Western Michigan University's Facilities Management department begins to prepare for winter closure, an approximate two to three week period commencing prior to the Christmas holiday and ending shortly after New Year's Day. This closure period provides an opportunity to perform maintenance that cannot be completed when buildings are occupied, as well an opportunity to save energy and money.

The two main components of winter closure are temperature set-backs, and equipment shutdowns. Building temperatures are reduced to fifty-five degrees, with exceptions for critical areas, and as much equipment as possible is turned down or shut off.

Since 2005, Western Michigan University has taken advantage of the closure period to realize significant cost savings for taxpayers. The most recent closure period resulted in a cost avoidance of nearly six hundred thousand dollars, and increased avoidance of nearly sixty-five thousand dollars from the previous year.

During the 2010 – 2011 winter closure, the university was able to avoid more than 860,000 kilowatt hours of electricity consumption, and nearly 23,000,000 pounds of steam consumption from its main power plant. WMU's Business Technology and Research Park (BTR) Engineering and Applied Sciences campus avoided more than 122,000 kilowatt hours in purchased electricity, as well as 324 MCF of natural

gas usage from its power plant.

Prior to the winter closure period, approximately fifty Facilities Management staff are charged with instituting the temperature set-backs and equipment shutdowns. Once the closure period arrives, a crew of two Environmental Control workers are responsible for monitoring all buildings to ensure they do not get too cold and freeze.

The cost-savings associated with the closure period would not be possible without the participation of the entire university community. The Facilities Management department thanks all of those involved in helping to make the closure period a huge success.

# FACILITIES MANAGEMENT | PROJECTS



Western View Apartments: Roof Being Installed

## PROMOTING SUSTAINABILITY

Article by: Lori Bell, Office Associate

From recycling carpet material to selection of architectural building materials, the Projects and Construction division pays close attention to promoting sustainability and being environmentally responsible. Having continued opportunities to work on a wide array of types of projects ranging from interior space renovations to new building construction, allows the chance to incorporate innovative sustainable action in our campus environments in many ways that affect both our community and the global effort in green design.

When challenged with planning a project, special attention to detail is focused in a multitude of sustainable areas, such as how the design can be sustainable in concept, what types of materials are specified, what the specified manufacturing processes involve, how areas are demolished, and how/where waste materials are removed just to name a few.

Select Projects with Sustainable Innovation Stewardship:

- Our current construction project for the new Sangren addition has implemented sustainability design throughout the design and construction phases and is applying for LEED Gold certification. A new featured vegetative roof design is one of the unique design elements qualifying for additional certification credits. The new Western View Apartment buildings are also applying for LEED certification.
- In our pavement improvement projects the removed materials are recycled and in major construction projects, concrete and steel are recycled. As examples, at Sangren, following the demolition, most of the concrete, steel and soils were being recycled and/or re-used.



The New Sangren Hall: Footings on the Southside of the building

- Strategic long term planning and design is applied when installing new roof membranes. Roof membranes installed on our campus buildings are intended to perform for many years with proper maintenance. When roof membrane replacement is needed, removed material can be shredded and recycled.
- New hydration stations were installed in Bistro 3 and the Bernhard Center lobby in an effort to promote students to use their reusable water bottles and help reduce plastic bottle waste. This effort has positively affected student campus life where more of these hydration stations have been requested.
- In the Fetzer Center renovation, carpet tile waste was reclaimed in an environmentally safe manner with a guarantee that the material was not sent to a land fill. This year our department was able to recycle 1.63 tons of carpet. A diverse range of outlets were used to recycle material ranging from making new plastic materials to being used in waste to energy production.
- Our in-house construction services shop also implement sustainable practices in remodeling efforts. Waste materials are sorted and disposed of in the university recycling dumpsters where materials such as metal, can be taken off site for recycling. Ray Novess says, "We always think twice before throwing anything out. Students are especially excellent at it." Whenever possible, items removed from

spaces are used in other areas and if furnishings are in good reusable condition, they are sent to Surplus.

Our team effort with campus construction improvements, sustainability practices are and will continue to be a dedicated approach with each new challenging project.



Bernhard Center-Rehydration Station

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